

**EPA Superfund
Record of Decision:**

**ROCKY MOUNTAIN ARSENAL (USARMY)
EPA ID: CO5210020769
OU 18
ADAMS COUNTY, CO
02/26/1990**

Text:

THE ENVIRONMENTAL

PROTECTION AGENCY, THE ARMY, THE DEPARTMENT OF THE INTERIOR, THE DEPARTMENT OF HEALTH AND HUMAN SERVICES, AND THE DEPARTMENT OF JUSTICE, WHICH ESTABLISHED PROCEDURES FOR IMPLEMENTING THE ARSENAL CLEANUP PROGRAM AS SPECIFIED IN THE TECHNICAL PROGRAM PLAN AND INCORPORATES THE MODIFIED PROPOSED CONSENT DECREE. THE ARMY AND SHELL OIL COMPANY AGREE TO SHARE CERTAIN COSTS OF THE REMEDIATION TO BE DEVELOPED AND PERFORMED UNDER THE OVERSIGHT OF THE US ENVIRONMENTAL PROTECTION AGENCY WITH OPPORTUNITIES FOR PARTICIPATION BY THE STATE OF COLORADO. THE LONG TERM REMEDIATION IS A COMPLEX TASK THAT WILL TAKE SEVERAL YEARS TO COMPLETE. THE FEDERAL FACILITY AGREEMENT SPECIFIES 13 INTERIM RESPONSE ACTIONS (IRAS) DETERMINED TO BE NECESSARY AND APPROPRIATE. THE REMEDIATION OF OTHER CONTAMINATION SOURCES IS ONE OF THE 13 IRAS. THE MOTOR POOL AREA IS ONE OF THE OTHER CONTAMINATION SOURCES.

#IRAO

INTERIM RESPONSE ACTION OBJECTIVES

THE SPECIFIC OBJECTIVE OF THE INTERIM RESPONSE ACTION (IRA) AT THE MOTOR POOL AREA IS TO MITIGATE THE THREAT OF RELEASES OF VOLATILE ORGANIC CONTAMINANTS FROM THE MOTOR POOL AREA ON AN INTERIM BASIS, PENDING DETERMINATION OF THE FINAL REMEDY IN THE ONPOST RECORD OF DECISION (ROD).

THE IRA ALTERNATIVES HAVE BEEN EVALUATED BASED ON THE FOLLOWING CRITERIA:

- * OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT
- * COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) TO THE MAXIMUM EVENT PRACTICABLE
- * REDUCTION OF MOBILITY, TOXICITY, OR VOLUME
- * SHORT- AND LONG-TERM EFFECTIVENESS
- * IMPLEMENTABILITY
- * COST

THIS DECISION DOCUMENT PROVIDES A SUM OF THE ALTERNATIVE TECHNOLOGIES CONSIDERED, A CHRONOLOGY OF THE SIGNIFICANT EVENTS LEADING TO THE INITIATION OF THE IRA, A SUMMARY OF THE IRA PROJECT, AND A SUMMARY OF THE ARARS (LEGAL AND REGULATORY STANDARDS, CRITERIA, OR LIMITATIONS) ASSOCIATED WITH THE PROGRAM.

AS SPECIFIED IN THE FEDERAL FACILITY AGREEMENT, THIS IRA WILL, BY TREATMENT OF SOILS AND CONTAINMENT OF GROUNDWATER, TO THE MAXIMUM EXTENT PRACTICABLE, BE CONSISTENT WITH AND CONTRIBUTE TO THE EFFICIENT PERFORMANCE OF THE FINAL RESPONSE ACTION.

#IRAA

INTERIM RESPONSE ACTION ALTERNATIVES

ALTERNATIVES WERE EXAMINED IN THE "ALTERNATIVE ASSESSMENT OF INTERIM RESPONSE ACTIONS FOR OTHER CONTAMINATION SOURCES-MOTOR POOL AREA" (WCC 1989) THESE ALTERNATIVES INCLUDED:

- * NO ACTION
- * MONITORING
- * INSTITUTIONAL CONTROLS
- * MULTILAYERED CAP (*)
- * IN-SITU VAPOR EXTRACTION(*)
- * ONSITE INCINERATION (*)
- * BIOREMEDIATION (*)

- * LOW-TEMPERATURE THERMAL DESORPTION (*)
- * OFFSITE INCINERATION (*)

(*) THESE ALTERNATIVES INCLUDE GROUNDWATER INTERCEPTION AND TREATMENT

FOLLOWING IS A BRIEF SUMMARY OF THE EVALUATION OF THESE ALTERNATIVES. ALL OF THE RETAINED ALTERNATIVES CAN BE DESIGNED AND IMPLEMENTED TO BE PROTECTIVE OF THE COMMUNITY AND THE WORKERS AND TO MEET APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) TO THE MAXIMUM EXTENT PRACTICABLE. ALTERNATIVES THAT REDUCE CONTAMINANT MOBILITY, TOXICITY, OR VOLUME ARE PREFERRED. ONE OF THE EVALUATION CRITERIA THAT SHOWED THE GREATEST VARIABILITY BETWEEN ALTERNATIVE WAS THE ABILITY OF AN ALTERNATIVE TO REDUCE CONTAMINANT MOBILITY, TOXICITY, OR VOLUME. THIS SUMMARY FOCUSES ON MAJOR POINTS FOUND DURING THE EVALUATION THAT MAKES EACH ALTERNATIVE DISTINCTIVE FROM THE OTHER. DETAILS OF THE EVALUATION CAN BE FOUND IN THE INTERIM RESPONSE ACTION (IRA) ALTERNATIVES ASSESSMENT FOR THIS SITE (WCC 1989).

NO ACTION

THIS ALTERNATIVE CONSISTS OF NO ACTION TO CONTAIN OR TREAT CONTAMINATED SOILS AT THE MOTOR POOL AREA. THIS ALTERNATIVE WOULD NOT REDUCE CONTAMINANT MOBILITY, TOXICITY, OR VOLUME.

MONITORING

THIS ALTERNATIVE CONSISTS OF CONDUCTING UPGRADIENT AND DOWNGRADIENT GROUNDWATER SAMPLING. THIS ALTERNATIVE WOULD NOT REDUCE CONTAMINANT MOBILITY, TOXICITY, OR VOLUME. MONITORING WOULD ALLOW CONTINUED TRACKING OF CONTAMINANT MOVEMENT.

INSTITUTIONAL CONTROLS

THIS ALTERNATIVE CONSISTS OF CONSTRUCTING A CHAIN-LINK FENCE WITH CONTROLLED ACCESS POINTS AROUND THE AREA OF CONCERN. THIS ALTERNATIVE WOULD NOT REDUCE CONTAMINANT MOBILITY, TOXICITY, OR VOLUME. SINCE RMA ALREADY HAS LIMITED ACCESS MAINTAINED BY PHYSICAL BARRIERS AND SECURITY PERSONNEL, ADDITIONAL SITE RESTRICTIONS ALONE WOULD BE OF LIMITED EFFECTIVENESS.

MULTILAYERED CAP

THIS ALTERNATIVE CONSISTS OF CONSTRUCTING A MULTILAYERED CAP OVER THE CONTAMINATED SOILS IN THE MOTOR POOL AREA. THE CAP WOULD CONSIST, FROM THE BASE UPWARD, OF AN 18-INCH-THICK LAYER OF LOW PERMEABILITY CLAY, A FLEXIBLE MEMBRANE LINER, A SYNTHETIC DRAINAGE NET, A GEOTEXTILE FILTER FABRIC AND A 1-FOOT PROTECTIVE SOIL LAYER. THE CAP WOULD BE SLOPED FROM THE CENTER TO FACILITATE RUNOFF. THE CAP WOULD GREATLY INHIBIT CONTINUED DOWNWARD MIGRATION OF CONTAMINANTS TO THE GROUNDWATER THROUGH SURFACE INFILTRATION.

THIS ALTERNATIVE CAN BE EASILY IMPLEMENTED BECAUSE IT IS BASED ON DEMONSTRATED TECHNOLOGY THAT HAS BEEN WIDELY USED. THE LONG-TERM EFFECTIVENESS OF THIS ALTERNATIVE IS SOMEWHAT LIMITED BECAUSE IT IS A CONTAINMENT TECHNOLOGY THAT DOES NOT ACTUALLY REMOVE OR TREAT THE SOURCE OF CONTAMINATION. THIS ALTERNATIVE WOULD NOT REDUCE CONTAMINANT TOXICITY OR VOLUMES, BUT IT WOULD REDUCE MOBILITY. PERIODIC RE-EVALUATION WOULD BE NECESSARY TO ASSESS THE CONTINUED EFFECTIVENESS OF THIS CONTAINMENT SYSTEM.

IN-SITU VAPOR EXTRACTION

THIS ALTERNATIVE CONSIST OF INSTALLING AN IN-SITU VAPOR EXTRACTION

SYSTEM TO TREAT THE CONTAMINATED SOILS IN THE UNSATURATED (VADOSE) OF THE MOTOR POOL AREA. THE VAPOR EXTRACTION PROCESS CONSISTS OF APPLYING A VACUUM TO A WELL OR TRENCH SCREENED IN THE ZONE OF CONTAMINATION, INDUCING A FLOW OF AIR THROUGH ADJACENT SOILS, AND PROGRESSIVELY AIR-STRIPPING THE VOLATILE CONTAMINANTS CONTAINED IN THE SOIL MATRIX. THE CONTAMINANTS ARE THEN ADSORBED ONTO ACTIVATED CARBON AND DESTROYED WHEN THE CARBON IS THERMALLY REACTIVATED OFF SITE.

THIS ALTERNATIVE CAN BE EASILY IMPLEMENTED BECAUSE IT IS BASED DEMONSTRATED TECHNOLOGY AND HAS BEEN WIDELY USED. THE SYSTEM CAN BE EASILY ADAPTED TO A GREATER DEPTH OR EXTENT OF CONTAMINATION, WHICH IS IMPORTANT BECAUSE OF THE UNCERTAINTIES IN CONTAMINATED SOIL VOLUME AT THIS SITE. ALSO, WHEN THE CARBON IS THERMALLY REACTIVATED, THE CONTAMINANTS ARE DESTROYED.

A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WOULD ALSO BE IMPLEMENTED AS PART OF THIS ALTERNATIVE TO CONTAIN GROUNDWATER CONTAMINATION FROM POSSIBLE CONTAMINATION SOURCES NOT IDENTIFIED IN TIME FOR THIS IRA GROUNDWATER EXTRACTION WELLS WOULD BE LOCATED NORTH-NORTHWEST OF THE MOTOR POOL AREA. EXTRACTED WATER WOULD BE SENT THROUGH CONVEYANCE PIPING EITHER TO THE IRONDALE CONTAINMENT SYSTEM, WHICH WOULD BE EXPANDED TO DEAL WITH THE INCREASED FLOW, OR TO A TREATMENT SYSTEM BUILT TO TREAT EXTRACTED WATER FROM THIS IRA AND THE RAIL CLASSIFICATION YARD IRA.

ONSITE INCINERATION

THIS ALTERNATIVE CONSISTS OF EXCAVATING THE CONTAMINATED SOILS IN THE MOTOR POOL AREA, INCINERATING THE SOILS IN A MOBILE ROTARY KILN INCINERATOR, AND PLACING THE TREATED SOIL BACK INTO THE EXCAVATION. THIS ALTERNATIVE COMPLETELY DESTROYS THE ORGANIC CONTAMINANTS THAT ARE A CONCERN AT THE MOTOR POOL AREA.

ALTHOUGH THIS ALTERNATIVE HAS A GOOD LONG-TERM EFFECTIVENESS BECAUSE IT DESTROYS THE CONTAMINANTS, ONSITE INCINERATION IS MORE DIFFICULT TO IMPLEMENT THAN OTHER ALTERNATIVES BECAUSE OF THE COMPLEX MECHANICAL OPERATION, MONITORING, AND CONTROL TO MAINTAIN HIGH DESTRUCTION AND REMOVAL EFFICIENCIES. THIS IRA ALTERNATIVE IS ALSO VERY COSTLY RELATIVE TO OTHER TREATMENT ALTERNATIVE.

A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WOULD ALSO BE IMPLEMENTED AS PART OF THIS ALTERNATIVE, AS DESCRIBED IN SECTION 4.5.

BIOREMEDIATION

THIS ALTERNATIVE CONSISTS OF EXCAVATING THE CONTAMINATED SOIL IN THE MOTOR POOL AREA AND TREATING THEM WITH BIOREMEDIATION. EXCAVATED SOIL WOULD BE FED BY CONVEYOR TO AN AGITATION VESSEL WHERE THE SOIL WOULD BE MIXED WITH WATER AND A CONCENTRATION SLURRY OF MICROORGANISMS. THE SLURRY WOULD THEN BE TRANSFERRED TO A SERIES OF LIQUID/SOLID CONTACT BIOREACTORS WHERE SUFFICIENT AIR AND NUTRIENTS ARE INTRODUCED TO MAINTAIN THE BIODEGRADATION OF THE ORGANIC CONTAMINANTS IN THE SOIL. THIS ALTERNATIVE DESTROYS THE ORGANIC CONTAMINANTS THAT ARE A CONCERN AT THE MOTOR POOL AREA.

THIS ALTERNATIVE HAS GOOD LONG-TERM EFFECTIVENESS BECAUSE IT DESTROYS THE CONTAMINANTS. HOWEVER, THERE ARE SOME UNCERTAINTIES IN BIOREACTION RATES AND RETENTION TIMES THAT COULD AFFECT THE SCHEDULE. ALSO, THERE IS SOME POTENTIAL FOR THE GENERATION OF PARTIAL DEGRADATION PRODUCTS SUCH AS DICHLOROETHYLENE AND VINYL CHLORIDE. BECAUSE OF THE UNCERTAINTIES IN THE DEPTH OF CONTAMINATION, MODIFIED EXCAVATION TECHNIQUES MAY BE REQUIRED, WHICH COULD AFFECT COSTS.

A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WOULD ALSO BE IMPLEMENTED AS PART OF THIS ALTERNATIVE, AS DESCRIBED IN SECTION 4-5.

LOW-TEMPERATURE THERMAL DESORPTION

THIS ALTERNATIVE CONSISTS OF EXCAVATING THE CONTAMINATED SOILS IN THE MOTOR POOL AREA AND TREATING THEM WITH LOW-TEMPERATURE THERMAL DESORPTION. EXCAVATED AND SCREENED SOIL WOULD BE SENT TO A LOW-TEMPERATURE THERMAL STRIPPING PROCESSOR OR A ROTARY DRUM SYSTEM THAT HEATS THE SOLIDS TO ABOUT 400 DEGREE FAHRENHEIT AND VAPORIZES THE CONTAMINANTS. PARTICULATES WOULD BE REMOVED FROM THE CONTAMINATED VAPORS, AND THEN THE VAPORS WOULD BE CONDENSED. THE CONDENSATE WOULD BE SENT TO A SOLVENT/WATER SEPARATOR AND ONTO CARBON FILTERS. THE CLEAN WATER WOULD BE USED FOR DUST CONTROL DURING EXCAVATION, AND THE GASES WOULD BE SENT TO AN AFTERBURNER. THIS ALTERNATIVE COMPLETELY DESTROYS THE ORGANIC CONTAMINANTS THAT ARE A CONCERN AT THE MOTOR POOL AREA.

THIS ALTERNATIVE HAS GOOD LONG-TERM EFFECTIVENESS BECAUSE IT DESTROYS THE CONTAMINANTS. BECAUSE OF THE UNCERTAINTIES IN THE DEPTH OF CONTAMINATION, MODIFIED EXCAVATION TECHNIQUES MAY BE REQUIRED, WHICH COULD AFFECT COSTS.

A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WOULD ALSO BE IMPLEMENTED AS PART OF THIS ALTERNATIVE, AS DESCRIBED IN SECTION 4.5.

OFFSITE INCINERATION

THIS ALTERNATIVE CONSISTS OF EXCAVATING CONTAMINATED SOIL IN THE MOTOR POOL AREA AND TRANSPORTING THE SOILS OFF SITE TO AN EXISTING PERMITTED HAZARDOUS WASTE INCINERATOR. THIS ALTERNATIVE COMPLETELY DESTROYS THE ORGANIC CONTAMINANTS THAT ARE A CONCERN AT THE MOTOR POOL AREA.

THIS ALTERNATIVE HAS GOOD LONG-TERM EFFECTIVENESS BECAUSE IT DESTROYS THE CONTAMINANTS. THERE COULD BE SOME RISK ASSOCIATED WITH TRANSPORTATION. ALSO, BECAUSE OF THE UNCERTAINTIES IN THE DEPTH OF CONTAMINATION, MODIFIED EXCAVATION TECHNIQUES MAY BE REQUIRED, WHICH COULD EFFECT COSTS. THIS ALTERNATIVE IS VERY COSTLY RELATIVE TO OTHER TREATMENT ALTERNATIVES.

A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WOULD ALSO BE IMPLEMENTED AS PART OF THIS ALTERNATIVE, AS DESCRIBED IN SECTION 4.5.

CONCLUSIONS

INSTALLING AND OPERATING AN IN-SITU VAPOR EXTRACTION SYSTEM IS THE CHOSEN ALTERNATIVE. THIS ALTERNATIVE CAN BE EASILY IMPLEMENTED BECAUSE IT IS BASED ON DEMONSTRATED TECHNOLOGY AND HAS BEEN WIDELY USED. THE SYSTEM CAN BE EASILY ADAPTED TO A GREATER EXTENT OF CONTAMINATION, WHICH IS IMPORTANT BECAUSE OF THE UNCERTAINTIES IN CONTAMINATED SOIL VOLUME AT THIS SITE. ALSO, SINCE THE CARBON IS THERMALLY REACTIVATED, THE CONTAMINANTS ARE DESTROYED.

A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WOULD ALSO BE IMPLEMENTED AS PART OF THIS ALTERNATIVE TO CONTAIN GROUNDWATER CONTAMINATION FROM POSSIBLE CONTAMINATION SOURCES NOT IDENTIFIED IN TIME FOR THIS IRA.

INSTALLATION OF AN IN-SITU VAPOR EXTRACTION SYSTEM AND GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WILL EFFECTIVELY MITIGATE FUTURE POTENTIAL CONTAMINATION MIGRATION FROM THE MOTOR POOL AREA. THEREFORE, IMPLEMENTATION OF THIS ACTION NOW WILL YIELD BOTH A COST AND TECHNICAL BENEFIT AND WILL BE CONSISTENT WITH AND CONTRIBUTE TO THE EFFICIENT PERFORMANCE OF THE FINAL RESPONSE ACTION.

#COE
CHRONOLOGY OF EVENTS

THE SIGNIFICANT EVENTS LEADING TO THE PROPOSED DECISION TO REMEDIATE SOILS IN THE MOTOR POOL AREA AS DESCRIBED IN SECTION 6.0 OF THIS REPORT ARE PRESENTED BELOW.

DATE	EVENT
JUNE 1987	STATE OF COLORADO, SHELL OIL CO., EPA, AND THE ARMY DEVELOP AND AGREE IN A JUNE 1987 REPORT TO THE COURT TO A PROSPECTIVE HOT SPOT LIST WHICH IDENTIFIES INTERIM RESPONSE ACTIONS (IRAS) TO BE CONDUCTED. THE HOT SPOT LIST CONSISTS OF FIVE AREAS (THE SECTION 36 TRENCHES, THE SECTION 36 LIME PITS, THE M-1 SETTLING BASINS, THE MOTOR POOL AREA, AND THE RAILROAD HOUSING TRACK IN THE RAIL CLASSIFICATION YARD) REFERRED TO AS "OTHER CONTAMINATION SOURCES" IN THE PROPOSED CONSENT DECREE (SECTION 9.1, PARAGRAPH L), AND IN THE FEDERAL FACILITY AGREEMENT, PARAGRAPH 22.1(I).
FEBRUARY 1988	THE STATE OF COLORADO, SHELL OIL COMPANY, AND EPA ARE INITIALLY REQUESTED TO IDENTIFY POTENTIAL ARARS FOR THIS IRA.
JANUARY 31, 1989	THE ARMY INSTRUCTS WOODWARD-CLYDE CONSULTANTS (WCC) TO DEVELOP PLANS FOR INTERIM ACTION INVESTIGATION WORK IN RESPONSE TO THE HOT SPOT LIST. INTERIM ACTION INVESTIGATION WORK INCLUDES THE MOTOR POOL AREA.
APRIL 13, 1989	A DRAFT TASK PLAN, WHICH INCLUDES THE MOTOR POOL AREA, IS SUBMITTED BY THE ARMY TO THE ORGANIZATIONS AND THE STATE FOR COMMENT.
APRIL 17, 1989	FIELD INVESTIGATIONS BEGIN FOR THE OTHER CONTAMINATION SOURCES IRA. WORK INCLUDES INVESTIGATION OF THE CONTAMINANT SOURCE(S) WITHIN THE MOTOR POOL AREA.
JUNE 29, 1989	A FINAL TASK PLAN IS ISSUED BY THE ARMY WITH COMMENTS INCORPORATED.
JULY 20, 1989	FIELD INVESTIGATION COMPLETED.
NOVEMBER 27, 1989	DRAFT FINAL RESULT OF FIELD AND LABORATORY INVESTIGATIONS CONDUCTED FOR THE REMEDIATION OF OTHER CONTAMINATION SOURCES INTERIM RESPONSE ACTION IS DISTRIBUTED BY THE ARMY TO THE ORGANIZATION AND THE STATE.
NOVEMBER 27, 1989	FINAL ALTERNATIVE ASSESSMENT OF INTERIM RESPONSE ACTION FOR OTHER CONTAMINATION SOURCE - MOTOR POOL AREA IS DISTRIBUTED BY THE ARMY TO THE ORGANIZATION AND THE STATE WITH RESPONSES TO COMMENTS INCORPORATED.
NOVEMBER 27, 1989	PROPOSED DECISION DOCUMENT FOR THE INTERIM RESPONSE ACTION AT THE MOTOR POOL AREA ARSENAL IS DISTRIBUTED BY THE ARMY TO THE ORGANIZATION AND THE STATE FOR COMMENT.
FEBRUARY 1, 1990	DRAFT FINAL DECISION DOCUMENTED FOR THE INTERIM

RESPONSE ACTION AT THE MOTOR POOL AREA AT THE ROCKY MOUNTAIN ARSENAL IS DISTRIBUTED BY THE ARMY TO THE ORGANIZATION AND THE STATE.

MARCH 5, 1990 DECISION DOCUMENT FOR THE INTERIM RESPONSE ACTION AT THE MOTOR POOL AREA AT THE ROCKY MOUNTAIN ARSENAL IS FINALIZED.

#SIRA
SUMMARY OF THE INTERIM RESPONSE ACTION

INSTALLING AND OPERATING AN IN-SITU VAPOR EXTRACTION SYSTEM IN CONJUNCTION WITH A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM IS THE CHOSEN ALTERNATIVE. THIS ALTERNATIVE CAN BE EASILY IMPLEMENTED BECAUSE IT IS BASED ON DEMONSTRATED TECHNOLOGY AND HAS BEEN WIDELY USED. THE SYSTEM CAN BE EASILY ADAPTED TO A GREATER DEPTH OR EXTENT OF CONTAMINATION, WHICH IS IMPORTANT BECAUSE OF THE UNCERTAINTIES IN CONTAMINATED SOIL VOLUME AT THIS SITE. ALSO, SINCE THE CARBON IS THERMALLY REACTIVATED, THE CONTAMINANTS ARE DESTROYED.

THIS ALTERNATIVE WILL INVOLVE INSTALLING SEVERAL EXTRACTION WELLS OR TRENCHES IN THE AREA OF CONTAMINATED SOIL AT THE MOTOR POOL AREA. A PILOT TEST WILL BE PERFORMED BEFORE INSTALLATION TO DETERMINE THE WELL LOCATIONS OR TRENCH SIZE NECESSARY TO CAPTURE CONTAMINANTS THROUGH THE AREAL EXTENT OF THE PLUME. THE SITE WILL BE CAPPED WITH A LAYER OF ASPHALT TO IMPROVE THE EFFICIENCY OF THE VAPOR EXTRACTION PROCESS. PRESSURIZED AND POSSIBLY PRE-HEATED AIR WILL BE INJECTED INTO THE SOIL. SOIL VAPORS WILL BE DRAWN BY A POSITIVE DISPLACEMENT VACUUM BLOWER THROUGH AN INLET LIQUID SEPARATOR/SILENCER, WHICH IS INSULATED TO MUFFLE EXPANDING GAS NOISE. STACK DISCHARGES WILL BE MONITORED AND REGULATED TO MAINTAIN A VOLATILE ORGANIC EMISSION RATE BELOW STANDARD EMISSION LIMITS. AN AUTOMATIC SHUT-OFF WILL BE INSTALLED IN THE STACK MONITORING SYSTEM TO SHUT OFF THE SYSTEM IF EMISSIONS REACH A CONCENTRATION ABOVE THE STANDARDS.

STACK TREATMENT MAY BE NECESSARY DEPENDING ON PILOT TEST AND STARTUP RESULTS. THE BLOWER EXHAUST AIR CAN BE ROUTED THROUGH A VAPOR PHASE CARBON FILTER OR CATALYTIC OXIDIZER TO ADSORB OR OXIDIZE VOLATILE EMISSIONS FROM THE EXHAUST PRIOR TO DISCHARGE TO THE ATMOSPHERE.

ANY LIQUID COLLECTED OR CONDENSED FROM THE INLET/SILENCER WOULD CONSIST PREDOMINANTLY OF CONDENSED WATER VAPOR FROM THE SOIL GAS. THIS WATER WOULD REQUIRE TREATMENT PRIOR TO DISPOSAL. AN APPLICABLE TREATMENT WOULD BE GRANULAR ACTIVATED CARBON. THE SPENT CARBON WOULD REQUIRE SUBSEQUENT REACTIVATION. THE VOLUME IS EXPECTED TO BE VERY LOW.

THERE MAY ALSO BE OTHER SOURCES OF GROUNDWATER CONTAMINATION IN THE MOTOR POOL AREA THAT HAVE NOT BEEN CLEARLY DEFINED IN TIME FOR THIS IRA. IN ORDER TO ADDRESS THESE OTHER POTENTIAL SOURCES, A GROUNDWATER INTERCEPTION AND TREATMENT SYSTEM WOULD BE IMPLEMENTED. THE GROUNDWATER WOULD BE INTERCEPTED BY EXTRACTION WELLS THAT WOULD COLLECT THE CONTAMINATED GROUNDWATER AND RETARD THE PROGRESS OF THE PLUME. THE EXTRACTION WELLS WOULD BE LOCATED NORTH-NORTHWEST OF THE MOTOR POOL AREA AND WOULD BE DESIGNED TO EXTRACT APPROXIMATELY 100 TO 130 GPM. THE EXACT LOCATION AND EXTRACTION RATE WOULD BE DETERMINED DURING THE IMPLEMENTATION PHASE.

EXTRACTION WATER WOULD BE TREATED IN CONJUNCTION WITH THE RAIL CLASSIFICATION YARD IRA. WATER WOULD BE SENT THROUGH CONVEYANCE PIPING TO THE IRONDALE CONTAINMENT SYSTEM, WHICH WOULD BE EXPANDED, IF NECESSARY, TO DEAL WITH THE INCREASED FLOW. IF THE IRONDALE CONTAINMENT SYSTEM CANNOT BE ADAPTED TO DEAL WITH THE INCREASED FLOW, A TREATMENT

SYSTEM WOULD BE BUILT IN THE VICINITY OF THE MOTOR POOL AREA IRA AND RAIL CLASSIFICATION YARD IRA EXTRACTION SYSTEMS.

HEALTH AND SAFETY PLAN

A HEALTH & SAFETY PLAN HAS BEEN DEVELOPED FOR THE PREVENTION OF OCCUPATIONAL INJURIES AND ILLNESSES DURING FIELD ACTIVITIES AT RMA. THIS PLAN ADDRESSES HEALTH AND SAFETY REQUIREMENTS OF CONTRACTORS AND THEIR AUTHORIZED SUBCONTRACTORS. COMPLIANCE WITH THIS PLAN WILL BE COMPULSORY, AND THE CONTRACTORS WILL BE RESPONSIBLE FOR SELF-ENFORCEMENT AND COMPLIANCE WITH THIS PLAN. THE HEALTH & SAFETY WAS DEVELOPED TAKING INTO CONSIDERATION KNOWN HAZARDS AS WELL AS POTENTIAL RISKS. COMPREHENSIVE ENVIRONMENTAL MONITORING AND SITE-SPECIFIC PERSONAL PROTECTION ARE COMBINED IN AN EFFORT TO BEST PROTECT WORKERS.

A SITE-SPECIFIC HEALTH & SAFETY PLAN FOR WORK TO BE PERFORMED IN THE MOTOR POOL AREA WILL BE DEVELOPED AND INCLUDED WITH THE DESIGN SPECIFICATION PACKAGE.

#IRAP

INTERIM RESPONSE ACTION PROCESS

WITH RESPECT TO THIS INTERIM RESPONSE ACTION (IRA) FOR THE REMEDIATION OF OTHER CONTAMINATION SOURCES, INCLUDING THE MOTOR POOL AREA AT ROCKY MOUNTAIN ARSENAL (RMA), THE IRA PROCESS IS AS FOLLOWS:

THE SCOPE OF THE IRA IS DESCRIBED IN THE JUNE 5, 1987 REPORT TO THE COURT OF THE UNITED STATES (THE ARMY AND EPA), SHELL, AND THE STATE IN UNITED STATES V. SHELL OIL CO. A SIMILAR DESCRIPTION IS INCLUDED IN THE PROPOSED CONSENT DECREE, PARAGRAPH 9.1 (L), AND IN THE FEDERAL FACILITY AGREEMENT (FFA), PARAGRAPH 22.1(L)

IF ANY ORGANIZATION IDENTIFIES ANY ADDITIONAL SOURCE AREAS FOR INCLUSION IN THIS IRA, THE ORGANIZATION MAY SUBMIT TO THE OTHERS A WRITTEN REPORT IDENTIFYING THE SOURCE AREA PROPOSED FOR INCLUSION AND SETTING FORTH THE FACTUAL TECHNICAL, AND SCIENTIFIC BASIS FOR THE PROPOSAL.

WITHIN 30 DAYS AFTER THE SUBMISSION OF SAID REPORT, THE ARMY SHALL DETERMINE WHETHER THE SOURCE AREA SHOULD BE INCLUDED IN THIS IRA AND NOTIFY SHELL, EPA, AND THE STATE OF ITS DETERMINATION. IF SHELL OR EPA DISAGREES WITH THE DETERMINATION OF THE ARMY, SHELL OR EPA MAY INVOKE DISPUTE RESOLUTION.

THE ARMY, EPA, AND THE STATE ARE GIVEN THE OPPORTUNITY TO IDENTIFY, ON A PRELIMINARY BASIS, ANY POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS).

THE ARMY ISSUES THIS PROPOSED DECISION DOCUMENT FOR THE IRA FOR THE INTERIM REMEDIATION OF OTHER CONTAMINATION SOURCES, MOTOR POOL AREA, FOR A 30-DAY PUBLIC COMMENT PERIOD. DURING THE 30-DAY COMMENT PERIOD, THE ARMY WILL HOLD ONE PUBLIC MEETING ADDRESSING THE IRA DECISION. THIS PROPOSED DECISION DOCUMENT IS SUPPORTED BY AN ADMINISTRATIVE RECORD.

PROMPTLY AFTER THE CLOSE OF THE COMMENT PERIOD, THE ARMY SHALL TRANSMIT TO THE OTHER ORGANIZATIONS, DEPARTMENT OF INTERIOR (DOI), AND THE STATE, A DRAFT FINAL IRA DECISION DOCUMENT FOR THE REMEDIATION OF OTHER CONTAMINATION SOURCES, MOTOR POOL AREA.

WITHIN 20 DAYS AFTER THE ISSUANCE OF A DRAFT FINAL IRA DECISION DOCUMENT FOR THE INTERIM REMEDIATION OF OTHER CONTAMINATION SOURCES, MOTOR POOL AREA, AN ORGANIZATION (INCLUDING THE STATE IF IT HAS AGREED TO BE BOUND BY THE DISPUTE RESOLUTION PROCESS, AS REQUIRED BY THE FFA, OR DOI UNDER

THE PROVISIONS SET FORTH IN THE FFA) MAY INVOKE DISPUTE RESOLUTION.

AFTER THE CLOSE OF THE PERIOD FOR INVOKING DISPUTE RESOLUTION, IF DISPUTE RESOLUTION IS NOT INVOKED, OR AFTER THE COMPLETION OF DISPUTE RESOLUTION, IF INVOKED, THE ARMY SHALL ISSUE A FINAL IRA DECISION DOCUMENT TO THE OTHER ORGANIZATIONS, DOI, AND THE STATE. THE ARMY SHALL ALSO NOTIFY THE PUBLIC OF THE AVAILABILITY OF THE FINAL IRA DECISION DOCUMENT WITH THE SUPPORTING ADMINISTRATIVE RECORD. ONLY PRELIMINARY DESIGN WORK FOR THE IRA MAY BE CONDUCTED PRIOR TO THE ISSUANCE OF THE FINAL IRA DECISION DOCUMENT.

THE IRA DECISION DOCUMENT FOR THE REMEDIATION ACTIVITY OF THE MOTOR POOL AREA WILL BE SUBJECT TO JUDICIAL REVIEW IN ACCORDANCE WITH SECTION XXXIX OF THE FEDERAL FACILITY AGREEMENT EXCEPT WHERE SUCH REVIEW IS BARRED BY SECTIONS 113 AND 121 OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA), AS AMENDED, 42 USC SECTIONS 6913 AND 9621.

FOLLOWING ISSUANCE OF THE FINAL IRA DECISION DOCUMENT, THE ARMY SHALL BE THE LEAD PARTY RESPONSIBLE FOR DESIGNING AND IMPLEMENTING THE IRA IN CONFORMANCE WITH THE DECISION DOCUMENT. THE ARMY SHALL ISSUE A DRAFT IRA IMPLEMENTATION DOCUMENT TO THE DOI, THE STATE, AND THE OTHER ORGANIZATIONS FOR REVIEW AND COMMENT. THE DRAFT IMPLEMENTATION DOCUMENT SHALL INCLUDE FINAL DRAWINGS AND SPECIFICATIONS, FINAL DESIGN ANALYSIS, A COST ESTIMATE, AND IRA DEADLINES FOR IMPLEMENTATION OF THE IRA.

IF ANY ORGANIZATION (INCLUDING THE STATE) OR THE DOI, BELIEVES THAT THE IRA IS BEING DESIGNED OR IMPLEMENTED IN A MANNER THAT WILL NOT MEET THE OBJECTIVES FOR THE IRA SET FORTH IN THE FINAL IRA DECISION DOCUMENT, OR IS OTHERWISE NOT BEING PROPERLY IMPLEMENTED, IT MAY SO ADVISE THE OTHER AND SHALL RECOMMEND HOW THE IRA SHOULD BE PROPERLY DESIGNED OR IMPLEMENTED. ANY ORGANIZATION (INCLUDING THE STATE, IF IT HAS AGREED TO BE BOUND BY THE PROCESS OF DISPUTE RESOLUTION, AS REQUIRED BY THE FFA, OR THE DOI UNDER THE CIRCUMSTANCES DEFINED IN THE FFA) MAY INVOKE DISPUTE RESOLUTION TO RESOLVE THE DISAGREEMENT.

AS LEAD PARTY FOR THE DESIGN AND IMPLEMENTATION OF THIS IRA, THE ARMY WILL ISSUE THE FINAL IMPLEMENTATION DOCUMENT, AS DESCRIBED ABOVE, AND WILL BE RESPONSIBLE FOR IMPLEMENTING THE IRA IN ACCORDANCE WITH THE IRA IMPLEMENTATION DOCUMENT.

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR THE REMEDIATION OF OTHER CONTAMINATION SOURCES - MOTOR POOL AREA INTERIM RESPONSE ACTION

INTRODUCTION

THESE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) ADDRESS THE ROCKY MOUNTAIN ARSENAL (RMA) MOTOR POOL AREA, WHICH HAS BEEN IDENTIFIED FOR REMEDIATION PRIOR TO THE ISSUANCE OF A RECORD OF DECISION (ROD) FOR THE ONPOST OPERABLE UNIT OF THE RMA. THE SELECTED ALTERNATIVE TO ACCOMPLISH THIS INTERIM REMEDIATION IS IN-SITU VAPOR EXTRACTION. THIS ACTION IS NOT THE FINAL RESPONSE BUT AN INTERIM TO ADDRESS THIS CONTAMINATION SOURCE PRIOR TO THE ISSUANCE OF THE ONPOST ROD.

AMBIENT OR CHEMICAL-SPECIFIC ARARS

AMBIENT OR CHEMICAL-SPECIFIC REQUIREMENTS SET CONCENTRATION LIMITS OR RANGES IN VARIOUS ENVIRONMENTAL MEDIA FOR SPECIFIC HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS. SUCH ARARS EITHER SET PROTECTIVE CLEANUP LEVELS FOR THE CHEMICALS OF CONCERN IN THE DESIGNATED MEDIA OR INDICATE AN APPROPRIATE LEVEL OF DISCHARGE BASED ON TECHNOLOGICAL CONSIDERATIONS.

THE OBJECTIVES OF THIS INTERIM RESPONSE ACTION (IRA) ARE DISCUSSED IN

THE FINAL ALTERNATIVE ASSESSMENT DOCUMENT AND THIS FINAL DECISION DOCUMENT. THIS IRA WILL BE IMPLEMENTED PRIOR TO THE FINAL REMEDIATION TO BE UNDERTAKEN IN THE CONTEXT OF THE ONPOST OPERABLE UNIT ROD. THIS PRIMARY CONTAMINANT OF CONCERN FOR THIS IRA IS TRICHLOROETHYLENE (TCE), A VOLATILE ORGANIC COMPOUND. THE MEDIA OF CONCERN HERE ARE SUBSURFACE SOILS CONTAINING VOLATILE ORGANIC CONTAMINANTS, PRIMARILY TCE. HOWEVER, NO AMBIENT OR CHEMICAL-SPECIFIC ARARS WERE IDENTIFIED CONCERNING LEVELS OF CONTAMINANTS FOR SOILS. THIS IRA IS EXPECTED TO TAKE ADVANTAGE OF GROUNDWATER TREATMENT PROVIDED THROUGH THE IRA ADDRESSING THE RAIL CLASSIFICATION YARD AND CHEMICAL-SPECIFIC ARARS CONCERNING WATER TREATED BY THAT IRA, INCLUDING WATER RECEIVED FROM THE PLUME RELATED TO THE MOTOR POOL AREA, ARE CONTAINED IN THAT FINAL DECISION DOCUMENT. IT IS POSSIBLE THAT A SEPARATE SYSTEM FOR GROUNDWATER TREATMENT WILL BE CONSTRUCTED FOR THIS IRA. THE FINAL DECISION DOCUMENT FOR THE RAIL CLASSIFICATION YARD IRA CONTAINS THE DETAILED DISCUSSION OF CHEMICAL-SPECIFIC ARARS FOR GROUNDWATER TREATMENT. THE STANDARDS IDENTIFIED BELOW WILL APPLY AT THE POINT OF REINJECTION OF TREATED GROUNDWATER FROM THE GROUNDWATER TREATMENT SYSTEM IMPLEMENTED PURSUANT TO THIS IRA:

COMPOUND	ARAR LEVEL	SOURCE
BENZENE	5 UG/L	40 CFR S141.61(A)
1,1-DICHLOROETHYLENE	7 UG/L	CBSG
1,1-DICHLOROETHYLENE	70 UG/L	CBSG
T-1,1-DICHLOROETHYLENE	7 UG/L	40 CFR S141.61(A)

CARBON MONOXIDE, OZONE, NITROGEN OXIDE, AND LEAD AND ARE NOT ANTICIPATED TO BE CONTAINED IN ANY POTENTIAL AIR EMISSIONS, AND THESE STANDARDS ARE DEFINED IN TERMS OF MEASUREMENTS IN LARGE AIR MESSES, SO THEY ARE NOT CONSIDERED RELEVANT AND APPROPRIATE TO APPLY TO THE TYPE OF EMISSION SOURCE THAT IS INTENDED TO BE UTILIZED IN THE CONTEXT OF THIS IRA.

THE STANDARDS CONTAINED AT 40 CFR PARTS 60 AND 61 WERE REVIEWED AND DETERMINED NOT TO BE APPLICABLE TO OPERATIONS CONDUCTED AS PART OF THE TREATMENT BY THIS IRA SYSTEM. THE STANDARDS APPLY TO SPECIFIC SOURCES OF THE LISTED POLLUTANTS. FOR EXAMPLE, SUBPART E OF 40 CFR PART 61 APPLIES TO SOURCES THAT PROCESS MERCURY ORE TO RECOVER MERCURY AND OTHER SPECIFIC PROCESSES, AND THE ARSENIC PROVISIONS OF SUBPARTS N, O AND P OF THIS PART APPLY TO VERY SPECIFIC PLANTS, SMELTERS OR FACILITIES. SINCE THE OPERATIONS CONTEMPLATED BY THIS IRA TREATMENT SYSTEM ARE EXTREMELY DISSIMILAR FROM THE PROCESSES DESCRIBED IN 40 CFR PART 61, THESE STANDARDS WERE ALSO NOT CONSIDERED TO BE RELEVANT AND APPROPRIATE TO APPLY TO THIS IRA SYSTEM. HOWEVER, AS DISCUSSED IN SECTION 3 CONCERNING ACTION-SPECIFIC ARARS, THE ARMY WILL APPLY BEST PRACTICABLE CONTROL TECHNOLOGY TO AIR EMISSIONS FROM TREATMENT PROCESSES.

LOCATION-SPECIFIC ARARS

LOCATION-SPECIFIC REQUIREMENTS SET RESTRICTIONS ON ACTIVITIES, DEPENDING ON THE CHARACTERISTICS OF THE SITE OR THE IMMEDIATE ENVIRONMENT, AND FUNCTION LIKE ACTION-SPECIFIC REQUIREMENTS. ALTERNATIVE REMEDIAL ACTIONS MAY BE RESTRICTED OR PRECLUDED, DEPENDING ON THE LOCATION OR CHARACTERISTIC OF THE SITE AND THE REQUIREMENTS THAT APPLY TO IT.

IT SHOULD BE NOTED THAT PARAGRAPH 44.2 OF THE FEDERAL FACILITY AGREEMENT PROVIDES THAT "WILDLIFE HABITAT(S) SHALL BE PRESERVED AND MANAGED AS NECESSARY TO PROTECT ENDANGERED SPECIES OF WILDLIFE TO THE EXTENT REQUIRED BY THE ENDANGERED SPECIES ACT (16 USC 1531 ET SEQ.). MIGRATORY BIRDS TO THE EXTENT REQUIRED BY THE MIGRATORY BIRD TREATY ACT (16 USC 703 ET SEQ.), AND BALD EAGLES TO THE EXTENT REQUIRED BY THE BALD EAGLE PROTECTION ACT, 16 USC 688 ET SEQ.".

WHILE THIS PROVISION IS NOT AN ARAR, IT RECITES STATUTORY REQUIREMENTS THAT ARE CONSIDERED ARARS AND OBVIOUSLY MUST BE COMPLIED WITH FOR PURPOSES OF THIS IRA. BASED ON WHERE ANY TREATMENT SYSTEM IS LIKELY TO BE LOCATED, THE ARMY BELIEVES THAT THIS IRA WILL HAVE NO ADVERSE IMPACT ON ANY ENDANGERED SPECIES OR MIGRATORY BIRD OR ON THE PROTECTION OF WILDLIFE HABITATS. COORDINATION WILL BE MAINTAINED WITH THE US FISH AND WILDLIFE SERVICE TO ENSURE THAT NO SUCH ADVERSE IMPACT ARISES FROM IMPLEMENTATION OF THIS IRA.

THE ARMY CONSIDERS THE PROVISIONS OF 40 CFR S6.302(A) AND (B), CONCERNING THE LOCATION OF ANY TREATMENT SYSTEM AND AVOIDING THE CONSTRUCTION OF SUCH SYSTEM IN THE MANNER THAT WOULD HAVE AN ADVERSE IMPACT ON WETLANDS OR BE WITHIN A FLOOD PLAIN, RELEVANT AND APPROPRIATE TO APPLY TO THE CONSTRUCTION ACTIVITIES CONCERNING THIS IRA.

THE REGULATIONS IN 40 CFR 230 WERE REVIEWED AND DETERMINED NOT TO BE APPLICABLE WITHIN THE CONTEXT OF THIS IRA BECAUSE NO DISCHARGE OF DREDGED OR FILL MATERIAL INTO WATERS OF THE UNITED STATES IS CONTEMPLATED. BECAUSE THESE REGULATIONS ADDRESS ONLY THE DISPOSAL OF SUCH MATERIALS INTO THE WATERS OF THE UNITED STATES, WHICH IS NOT CONTEMPLATED, THEY ARE NOT CONSIDERED TO BE RELEVANT AND APPROPRIATE TO APPLY IN THE CONTEXT OF THIS IRA.

THE REGULATIONS IN 33 CFR 320-330 WERE REVIEWED AND DETERMINED TO BE NEITHER APPLICABLE NOR RELEVANT AND APPROPRIATE BECAUSE THEY ADDRESS ACTIONS AFFECTING THE WATERS OF THE UNITED STATES. NO SUCH ACTIONS ARE CONTEMPLATED WITHIN THE CONTEXT OF THIS IRA.

ACTION-SPECIFIC ARARS

DESCRIPTION

PERFORMANCE, DESIGN, OR OTHER ACTION-SPECIFIC REQUIREMENTS SET CONTROLS OR RESTRICTIONS ON ACTIVITIES RELATED TO THE MANAGEMENT OF HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS. THESE ACTION-SPECIFIC REQUIREMENTS MAY SPECIFY PARTICULAR PERFORMANCE LEVELS, ACTIONS, OR TECHNOLOGIES AS WELL AS SPECIFIC LEVELS (OR A METHODOLOGY FOR SETTING SPECIFIC LEVELS) FOR DISCHARGED OR RESIDUAL CHEMICALS.

CONSTRUCTION OF TREATMENT SYSTEM

AIR EMISSIONS

ON THE REMOTE POSSIBILITY THAT THERE MAY BE AIR EMISSIONS DURING THE COURSE OF THE CONSTRUCTION OF ANY TREATMENT SYSTEM, THE ARMY HAS REVIEWED ALL POTENTIAL AMBIENT OR CHEMICAL-SPECIFIC AIR EMISSION REQUIREMENTS. AS A RESULT OF THIS REVIEW, THE ARMY FOUND THAT THERE ARE, AT PRESENT, NO NATIONAL OR STATE AMBIENT AIR QUALITY STANDARDS CURRENTLY APPLICABLE OR RELEVANT AND APPROPRIATE TO THE VOLATILE OR SEMIVOLATILE CHEMICALS IN THE GROUNDWATER FOUND THE ARE IN WHICH CONSTRUCTION IS CONTEMPLATED.

IN THE CONTEXT OF THIS IRA, THERE IS ONLY A VERY REMOTE CHANCE OF ANY RELEASE OF VOLATILES OR SEMIVOLATILES AND, EVEN IF SUCH A RELEASE DID OCCUR, IT WOULD ONLY BE INTERMITTENT AND OF VERY BRIEF DURATION (BECAUSE THE ACTIVITY THAT PRODUCED THE RELEASE WOULD BE STOPPED AND MODIFIED APPROPRIATELY IF A SIGNIFICANT AIR EMISSION, BASED UPON SPECIFIC STANDARDS CONTAINED IN THE HEALTH SAFETY PLAN, WAS DETECTED BY THE CONTRACTOR'S AIR MONITORING SPECIALIST). THE ARMY HAS SIGNIFICANT EXPERIENCE WITH THE CONSTRUCTION OF RECHARGE TRENCHES, EXTRACTION AND REINJECTION WELLS, IN WHICH CONSTRUCTION IS SIMILAR TO THAT NECESSARY FOR THE EMPLACEMENT OF AN IN-SITU VAPOR EXTRACTION SYSTEM, AND HAS NOT EXPERIENCED ANY PROBLEMS FROM AIR EMISSIONS DURING CONSTRUCTION OF SUCH

FACILITIES. SUBSURFACE FACILITIES CONTEMPLATED BY THIS IRA ARE IN NATURE TO THESE, AND EMISSIONS PROBLEMS ARE NOT ANTICIPATED. THE SITE-SPECIFIC HEALTH & SAFETY PLAN WILL ADEQUATELY ADDRESS THESE CONCERNS. THIS PLAN TO BE DEVELOPED FOR USE IN THE IRA WILL DETAIL OPERATIONAL MODIFICATIONS TO BE IMPLEMENTED IN THE EVENT MONITORING DETECTS SPECIFIC LEVELS OF SUCH EMISSIONS.

THE NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS) WERE EVALUATED TO DETERMINE WHETHER THEY WERE APPLICABLE OR RELEVANT AND APPROPRIATE TO APPLY IN THE CONTEXT OF CONSTRUCTION OF THIS IRA. THESE STANDARDS WERE NOT CONSIDERED APPLICABLE BECAUSE THEY APPLY TO STATIONARY SOURCES OF THESE POLLUTANTS, NOT TO CONSTRUCTION ACTIVITY. THESE STANDARDS WERE NOT CONSIDERED RELEVANT AND APPROPRIATE BECAUSE THEY WERE DEVELOPED FOR MANUFACTURING PROCESSES, WHICH ARE SIGNIFICANTLY DISSIMILAR TO THE SHORT-TERM CONSTRUCTION ACTIVITY CONTEMPLATED BY THIS IRA. HOWEVER, THE SUBSTANTIVE PROVISIONS OF 40 CFR PART 61, SUBPART V CONCERNING NATIONAL EMISSION STANDARD FOR EQUIPMENT LEAKS (FUGITIVE EMISSION SOURCES), PARTICULARLY THOSE SUBSTANTIVE PROVISIONS FOUND IN 40 CFR SS61.242-1 - 61.242-11 ARE CONSIDERED RELEVANT AND APPROPRIATE TO APPLY TO THIS IRA.

THE PROVISIONS OF 40 CFR 50.6 WILL BE CONSIDERED RELEVANT AND APPROPRIATE. THIS STANDARD IS NOT APPLICABLE BECAUSE IT ADDRESSES AIR QUALITY CONTROL REGIONS, WHICH ARE AREAS SIGNIFICANTLY LARGER THAN AND DIFFERENT FROM THE AREA OF CONCERN IN THIS IRA. PURSUANT TO THIS REGULATION, THERE WILL BE NO PARTICULATE MATTER TRANSPORTED BY AIR FROM THE SITE THAT IS IN EXCESS OF 75 MICROGRAMS PER CUBIC METER (ANNUAL GEOMETRIC MEAN) AND THE STANDARD OF 260 MICROGRAMS PER CUBIC METER AS A MAXIMUM 24-HOUR CONCENTRATION WILL NOT BE EXCEEDED MORE THAN ONCE PER YEAR.

WORKER PROTECTION

THE PROVISIONS OF 29 CFR 1901 ARE APPLICABLE TO WORKER AT THE SITE BECAUSE THESE PROVISIONS SPECIFICALLY ADDRESS HAZARDOUS SUBSTANCE RESPONSE OPERATIONS UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA) IT SHOULD BE NOTED THAT THESE ACTIVITIES ARE CURRENTLY GOVERNED BY THE INTERIM RULE FOUND AT 29 CFR 1910.120 BUT THAT BY THE TIME IRA ACTIVITY COMMENCES AT THE SITE, THE FINAL RULE FOUND AT 54 FR 9294 (MARCH 6, 1989) WILL BE OPERATIVE. (THE FINAL RULE BECOMES EFFECTIVE ON MARCH 6, 1990.)

GENERAL CONSTRUCTION ACTIVITIES

THE FOLLOWING PERFORMANCE, DESIGN, OR OTHER ACTION-SPECIFIC STATE ARARS HAVE BEEN PRELIMINARILY IDENTIFIED BY THE ARMY AS RELEVANT AND APPROPRIATE TO THIS PORTION OF THE IRA AND MORE STRINGENT THAN ANY APPLICABLE OR RELEVANT AND APPROPRIATE FEDERAL STANDARD, REQUIREMENT, CRITERION, OR LIMITATION. THESE STANDARDS ARE NOT APPLICABLE BECAUSE THEY SPECIFICALLY DO NOT ADDRESS A REMEDIAL ACTION OR CIRCUMSTANCE UNDER CERCLA:

- * COLORADO AIR POLLUTION CONTROL COMMISSION REGULATION NO. 1, 5 CCR 1001-3, PART III(D)(2)(B), CONSTRUCTION ACTIVITIES:

A. APPLICABILITY - ATTAINMENT AND NONATTAINMENT AREAS

B. GENERAL REQUIREMENT - ANY OWNER OR OPERATOR ENGAGED IN CLEARING, OR LEVELING OF LAND OR OWNER OR OPERATOR OF LAND THAT HAS BEEN CLEARED OF GREATER THAN ONE (1) ACRE IN NONATTAINMENT AREAS FOR WHICH FUGITIVE PARTICULATE EMISSIONS WILL BE EMITTED SHALL BE REQUIRED TO USE ALL AVAILABLE AND PRACTICAL METHODS WHICH ARE TECHNOLOGICALLY FEASIBLE AND ECONOMICALLY REASONABLE IN ORDER TO MINIMIZE SUCH EMISSIONS, IN

ACCORDANCE WITH THE REQUIREMENTS OF SECTION III.D OF THIS REGULATION.

C. APPLICABLE EMISSION LIMITATION GUIDELINE - BOTH THE 20 PER CENT CAPACITY AND THE NO OFF-PROPERTY TRANSPORT EMISSION LIMITATION GUIDELINES SHALL APPLY TO CONSTRUCTION ACTIVITIES; EXCEPT THAT WITH RESPECT TO SOURCES OR ACTIVITIES ASSOCIATED WITH CONSTRUCTION FOR WHICH THERE ARE SEPARATE REQUIREMENTS SET FORTH IN THIS REGULATION, THE EMISSION LIMITATION GUIDELINES THERE SPECIFIED AS APPLICABLE TO SUCH SOURCES AND ACTIVITIES SHALL BE EVALUATED FOR COMPLIANCE WITH THE REQUIREMENT OF SECTION OF SECTION III.D OF THIS REGULATION. (CROSS REFERENCE: SUBSECTIONS E AND F OF SECTION III.D.2 OF THIS REGULATION).

D. CONTROL MEASURES AND OPERATING PROCEDURES CONTROL MEASURES OR OPERATIONAL PROCEDURES, TO BE EMPLOYED MAY INCLUDE BUT ARE NOT NECESSARILY LIMITED TO PLANTING VEGETATION COVER, PROVIDING SYNTHETIC COVER, WATERING CHEMICAL STABILIZATION, FURROWS, COMPACTING, MINIMIZING DISTURBED, AREA IN THE WINTER, WIND BREAKS, AND OTHER METHODS OR TECHNIQUES.

* COLORADO AMBIENT AIR QUALITY STANDARD, 5 CCR 1001-14, AIR QUALITY REGULATION A, DIESEL-POWERED VEHICLE EMISSION STANDARDS FOR VISIBLE POLLUTANTS:

A. NO PERSON SHALL EMIT OR CAUSE TO BE EMITTED INTO THE ATMOSPHERE FROM ANY DIESEL-POWERED VEHICLE ANY AIR CONTAMINANT, FOR A PERIOD GREATER THAN 10 CONSECUTIVE SECONDS, WHICH IS OF SUCH A SHADE OR DENSITY AS TO OBSCURE AN OBSERVER'S VISION TO A DEGREE IN EXCESS OFF 40 PERCENT OPACITY, WITH THE EXCEPTION OF SUBPART B BELOW.

B. NO PERSON SHALL EMIT OR CAUSE TO BE EMITTED INTO THE ATMOSPHERE FROM ANY NATURALLY ASPIRATED DIESEL-POWERED VEHICLE OF OVER 8,500 POUNDS GROSS VEHICLE WEIGHT RATING OPERATED ABOVE 7,000 FEET (MEAN SEA LEVEL), ANY AIR CONTAMINANT FOR A PERIOD OF 10 CONSECUTIVE SECONDS, WHICH IS OF A SHADE OR DENSITY AS TO OBSCURE AN OBSERVER'S VISION TO A DEGREE IN EXCESS OF 50 PER CENT OPACITY.

C. DIESEL-POWERED VEHICLES EXCEEDING THESE REQUIREMENTS SHALL BE EXEMPT FOR A PERIOD OF 10 MINUTES, IF THE EMISSIONS ARE A DIRECT RESULT OF A COLD ENGINE START-UP AND PROVIDED THE VEHICLE IS IN A STATIONARY POSITION.

D. THIS STANDARD SHALL APPLY TO MOTOR VEHICLES INTENDED, DESIGNED, AND MANUFACTURED PRIMARILY FOR USE IN CARRYING PASSENGERS OR CARGO ON ROADS, STREETS, AND HIGHWAYS.

THE FOLLOWING PERFORMANCE, DESIGN, OR ACTION-SPECIFIC STATE ARAR IS APPLICABLE TO THIS PORTION OF THE IRA AND IS MORE STRINGENT THAN ANY APPLICABLE OR RELEVANT AND APPROPRIATE FEDERAL STANDARD, REQUIREMENT, CRITERION OR LIMITATION:

* COLORADO NOISE ABATEMENT STATUTE, CRS SECTION 25-12-103:

A. EACH ACTIVITY TO WHICH THIS ARTICLE IS APPLICABLE SHALL BE CONDUCTED IN A MANNER SO THAT ANY NOISE PRODUCED IS NOT OBJECTIONABLE DUE TO INTERMITTENCE, BEAT FREQUENCY, OR SHRILLNESS. SOUND LEVEL OF NOISE RADIATING FROM A PROPERTY LINE AT A DISTANCE OF TWENTY-FIVE FEET OR MORE THERE FROM IN EXCESS OF THE DB(A) ESTABLISHED FOR THE FOLLOWING TIME PERIODS AND ZONE SHALL CONSTITUTE FRIMA FACIE EVIDENCE THAT SUCH NOISE IS A PUBLIC NUISANCE:

ZONE	7:00 AM TO	7:00 PM TO
	NEXT 7:00 PM	NEXT 7:00 AM
RESIDENTIAL	55 DB(A)	50 DB(A)
COMMERCIAL	60 DB(A)	55 DB(A)

LIGHT INDUSTRIAL	70 DB(A)	65 DB(A)
INDUSTRIAL	80 DB(A)	75 DB(A)

B. IN THE HOURS BETWEEN 7:00 AM AND THE NEXT 7:00 PM, THE NOISE LEVELS PERMITTED IN SUBSECTION (1) OF THIS SECTION MAY BE INCREASED BY TEN DB(A) FOR A PERIOD OF NOT TO EXCEED FIFTEEN MINUTES IN ANY ONE-HOUR PERIOD.

C. PERIODIC, IMPULSIVE, OR SHRILL NOISES SHALL BE CONSIDERED A PUBLIC NUISANCE WHEN SUCH NOISES ARE AT A SOUND LEVEL OF FIVE DB(A) LESS THAN THOSE LISTED IN SUBPART (A) OF THIS SECTION.

D. CONSTRUCTION PROJECTS SHALL BE SUBJECT TO THE MAXIMUM PERMISSIBLE NOISE LEVELS SPECIFIED FOR INDUSTRIAL ZONES FOR THE PERIOD WITHIN WHICH CONSTRUCTION IS TO BE COMPLETED PURSUANT TO ANY APPLICABLE CONSTRUCTION PERMIT ISSUED BY PROPER AUTHORITY OR, IF NO TIME LIMITATION IS IMPOSED, FOR A REASONABLE PERIOD OF TIME FOR COMPLETION OF THE PROJECT.

E. FOR THE PURPOSE OF THIS ARTICLE, MEASUREMENTS WITH SOUND LEVEL METERS SHALL BE MADE WHEN THE WIND VELOCITY AT THE TIME AND PLACE OF SUCH MEASUREMENT IS NOT MORE THAN FIVE MILES PER HOUR.

F. IN ALL SOUND LEVEL MEASUREMENT CONSIDERATION SHALL BE GIVEN TO THE EFFECT OF THE AMBIENT NOISE LEVEL CREATED THE ENCOMPASSING NOISE OF THE ENVIRONMENT FROM ALL SOURCES AT THE TIME AND PLACE OF SUCH SOUND LEVEL MEASUREMENTS.

IN SUBSTANTIVE FULFILLMENT OF COLORADO AIR POLLUTION CONTROL COMMISSION REGULATION NO. 1, THIS IRA WILL EMPLOY THE SPECIFIED METHODS FOR MINIMIZING EMISSION FROM FUEL BURNING EQUIPMENT AND CONSTRUCTION ACTIVITIES. IN SUBSTANTIVE FULFILLMENT OF COLORADO'S DIESEL-POWERED VEHICLE EMISSION STANDARDS, NO DIESEL MOTOR VEHICLES ASSOCIATED WITH THE CONSTRUCTION SHALL BE OPERATE IN MANNER THAT WILL PRODUCE EMISSION IN EXCESS OF THOSE SPECIFIED IN THESE STANDARDS.

THE NOISE LEVELS PERTINENT FOR CONSTRUCTION ACTIVITY PROVIDED IN CRS SECTION 25-12-103 WILL BE ATTAINED IN ACCORDANCE WITH THIS APPLICABLE COLORADO STATUTE.

OPERATION OF TREATMENT SYSTEM

SINCE SMALL AMOUNTS OF AIR EMISSIONS ARE ANTICIPATED FROM THE TREATMENT SYSTEM, THE ARMY WILL TREAT THE PROVISIONS OF COLORADO AIR POLLUTION CONTROL REGULATION NO. 3, SECTION IV (D)(3)(A), AS RELEVANT AND APPROPRIATE AND WILL USE BEST PRACTICAL CONTROL TECHNOLOGY. THIS REGULATION IS NOT APPLICABLE BECAUSE THE IRA TREATMENT SYSTEM WILL NOT BE A MAJOR STATIONARY SOURCE, AS DEFINED BY THAT REGULATION.

WETLANDS IMPLICATIONS

THROUGH ESTIMATION OF THE GENERAL AREA WHERE ANY SYSTEM WOULD BE LOCATED, THE ARMY DOES NOT BELIEVE THAT ANY WETLANDS COULD BE ADVERSELY AFFECTED. HOWEVER, UNTIL A FINAL DESIGN IS SELECTED AND A FINAL SITING DECISION MADE, IT CANNOT BE DEFINITELY DETERMINED THAT NO IMPACT ON WETLANDS WILL OCCUR. IF THE FINAL SITE SELECTION AND/OR DESIGN RESULTS IN AN IMPACT ON WETLANDS, THE ARMY WILL REVIEW THE REGULATORY PROVISIONS IDENTIFIED AS ARARS ABOVE CONCERNING WETLANDS IMPACT AND OTHER APPROPRIATE GUIDANCE, AND WILL PROCEED IN A MANNER CONSISTENT WITH THOSE PROVISIONS. COORDINATION WILL BE MAINTAINED WITH THE US FISH AND WILDLIFE SERVICE CONCERNING ANY POTENTIAL IMPACTS ON WETLANDS.

LAND DISPOSAL RESTRICTIONS AND REMOVAL OF SOIL

THERE ARE NO ACTION-SPECIFIC ARARS THAT PERTAIN TO THE EXCAVATION OF SOIL DURING THE CONSTRUCTION OF THIS TREATMENT SYSTEM.

EPA IS CURRENTLY DEVELOPING GUIDANCE CONCERNING THE LAND DISPOSAL RESTRICTIONS (LDR), PARTICULARLY THEIR APPLICABILITY TO CERCLA REMEDIAL ACTIONS. WHILE GUIDANCE IS LIMITED, THE ARMY HAS NOT, AT THIS TIME, MADE A DETERMINATION THAT ANY LISTED WASTE SUBJECT TO LDR WILL BE PRESENT IN THE INFLUENT TREATED OR SOIL REMOVED BY THIS IRA. MORE LISTINGS ARE SCHEDULED TO BE COMPLETED PRIOR TO THE IMPLEMENTATION OF THIS IRA AND THE ARMY WILL REVIEW THESE AS THEY ARE RELEASED. IF IT IS DETERMINED THAT A LISTED WASTE IS PRESENT, THE ARMY WILL ACT IN A MANNER CONSISTENT WITH EPA GUIDANCE FOR THE MANAGEMENT OF SUCH WITHIN THE CONTENT OF CERCLA ACTIONS.

ALTHOUGH REMOVAL OF SOIL FROM THE AREA WHERE ANY TREATMENT SYSTEM WILL BE LOCATED IS A TBC, NOT AN ARAR, IT WILL BE PERFORMED IN ACCORDANCE WITH THE PROCEDURES SET FORTH IN THE TASK NO. 32 TECHNICAL PLAN, SAMPLING WASTE HANDLING (NOVEMBER 1987), AND EPA'S JULY 12, 1985, MEMORANDUM REGARDING "EPA REGION VIII PROCEDURE FOR HANDLING OF MATERIAL FROM DRILLING, TRENCH EXCAVATION AND DECONTAMINATION DURING CERCLA RI/FS OPERATIONS AT THE ROCKY MOUNTAIN ARSENAL." SOIL GENERATED BY EXCAVATION DURING THE COURSE OF THIS IRA, EITHER AT SURFACE OR SUBSURFACE, MAY BE RETURNED TO THE LOCATION FROM WHICH THEY ORIGINATED (I.E., LAST OUT, FIRST IN). ANY MATERIALS REMAINING AFTER COMPLETION OF BACKFILLING THAT ERA SUSPECTED OF BEING CONTAMINATED (BASED ON FIELD SCREENING TECHNIQUES IDENTIFIED IN THE REFERENCED DOCUMENT) WILL BE PROPERLY STORED, SAMPLED, ANALYZED, AND ULTIMATELY DISPOSED AS CERCLA HAZARDOUS WASTES, AS APPROPRIATE.

FOR MATERIAL DETERMINED TO BE HAZARDOUS WASTE RESULTING FROM CONSTRUCTION ACTIVITIES, SUBSTANTIVE RESPONSE CONSERVATION AND RECOVERY ACT (RCRA) PROVISIONS ARE APPLICABLE TO THEIR MANAGEMENT. THESE SUBSTANTIVE PROVISIONS INCLUDE BUT ARE NOT LIMITED TO: 40 CFR PART 262 (SUBPART C, PRE-TRANSPORT REQUIREMENTS), 40 CFR PART 263 (TRANSPORTER STANDARDS), AND 40 CFR PART 264 (SUBPART I CONTAINER STORAGE AND SUBPART L, WASTE PILES). THE SPECIFIC SUBSTANTIVE STANDARDS APPLIED WILL BE DETERMINED BY THE FACTUAL CIRCUMSTANCES OF THE ACCUMULATION, STORAGE, OR DISPOSAL TECHNIQUES ACTUALLY APPLIED TO ANY SUCH MATERIAL.

SOIL TREATMENT AND DISPOSAL

THE PROPOSED REMEDIAL ACTION DOES NOT CONTEMPLATE THE ONSITE OR OFFSITE DISPOSAL OF SOILS OR CONTAMINATED MATERIAL, OTHER THAN RESULTING FROM CONSTRUCTION ACTIVITIES, SINCE VAPOR EXTRACTION FROM THE SOIL IS INTENDED, RATHER THAN EXCAVATION AND DISPOSAL OF SOIL.

COMPLIANCE WITH THE OTHER ENVIRONMENTAL LAWS

AS IS EVIDENT FROM THE VARIOUS PORTIONS OF THIS DOCUMENT, THIS IRA WAS PREPARED IN SUBSTANTIVE COMPLIANCE WITH 40 CFR 1502.16 (THE REGULATIONS IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969).

#SCH SCHEDULE

THE DRAFT IMPLEMENTATION DOCUMENT IS SCHEDULED FOR COMPLETION ON JULY 31, 1990. THE CONSTRUCTION SCHEDULE WILL BE CONTAINED IN THE DRAFT IMPLEMENTATION DOCUMENT FOR THIS INTERIM RESPONSE ACTION (IRA). THIS MILESTONE HAS BEEN DEVELOPED BASED UPON THE FINAL ASSESSMENT DOCUMENT AND THE ASSUMPTION THAT NO DISPUTE RESOLUTION WILL OCCUR. IF EVENTS THAT NECESSITATE A SCHEDULE CHANGE OR EXTENSION OCCUR, THE CHANGE WILL BE INCORPORATED IN ACCORDANCE WITH THE FEDERAL FACILITY AGREEMENT.

CONSISTENCY WITH THE FINAL REMEDIAL ACTION

THE FEDERAL FACILITY AGREEMENT STATES THAT ALL INTERIM RESPONSE ACTIONS (IRAS) SHALL "TO THE MAXIMUM EXTENT PRACTICABLE, BE CONSISTENT WITH AND CONTRIBUTE TO THE EFFICIENT PERFORMANCE OF FINAL RESPONSE ACTIONS" (PARAGRAPH 22.5).

THE ALTERNATIVES ASSESSMENT CRITERIA (WCC 1989) WERE USED TO EVALUATE THE ALTERNATIVES. THE SELECTED ALTERNATIVE, BY PROVIDING SIGNIFICANT INTERIM REMEDIATION OF A SOURCE OF CONTAMINATION, WILL BE CONSISTENT WITH ANY FINAL RESPONSE ACTION.

SPECIFIC COMMENTS

COMMENT 1: P. 3-1 SELECTION CRITERIA. THIS PAGE IDENTIFIES 7 OF 9 ALTERNATIVE ASSESSMENT CRITERIA THAT SHOULD BE USED TO COMPARE AND CONTRAST ALTERNATIVES. THE DOCUMENT, HOWEVER, DOES NOT USE THE CRITERIA FOR ALTERNATIVES SELECTION. ONLY REDUCTION OF TOXICITY, MOBILITY, AND VOLUME IS ADDRESSED IN ANY DETAIL. EVALUATION OF ALTERNATIVES SHOULD BE BASED UPON, BUT NOT LIMITED TO, THE CRITERIA IN SECTION 22.6 OF THE FFA.

RESPONSE: THE DECISION DOCUMENT IS INTENDED TO PRESENT A BRIEF SUMMARY OF THE DETAILED ALTERNATIVE EVALUATION CONDUCTED IN THE IRA ALTERNATIVE ASSESSMENT. THE TEXT OF THE DECISION DOCUMENT HAS BEEN REVISED TO BETTER DISCUSS THE OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT. THE OTHER CRITERIA LISTED IN SECTION 3.0 ARE DISCUSSED IN THIS DOCUMENT. THE ARMY ASSUMES THAT THE OTHER TWO CRITERIA THE EPA IS REFERRING TO ARE STATE (SUPPORT AGENCY) APPROVAL AND COMMUNITY ACCEPTANCE. THESE CRITERIA ARE ADDRESSED DURING THE EXTENSIVE REVIEW PROCESS FOR THIS DOCUMENT.

COMMENT 2: P. 4-2 IN-SITU VAPOR EXTRACTION. THIS IS A CONTAMINANT CONTROL AND TREATMENT ALTERNATIVE THAT COULD RESULT IN EXTRACTION OF AN UNKNOWN QUANTITY OF CONTAMINANTS AND AT THE SAME TIME BE CONSISTENT WITH (OR NOT PRECLUDE) ANY FINAL REMEDY. IT IS A GOOD ALTERNATIVE ON THAT BASIS.

IN-SITU VAPOR EXTRACTION IS A VIABLE ALTERNATIVE FOR THE REMOVAL OF TCE FROM THE VADOSE ZONE. THE VADOSE ZONE MAY NOT BE THE EXISTING SOURCE OF GROUNDWATER CONTAMINATION (SEE GENERAL COMMENTS). IF THE MAJOR SOURCE OF GROUNDWATER CONTAMINATION IS NOT FROM PERCOLATION OF WATER THROUGH THE VADOSE ZONE BUT RATHER A CONCENTRATED POCKET OF TCE AT THE BASE OF THE ALLUVIUM, THEN IN-SITU VAPOR EXTRACTION WILL NOT BE AN EFFECTIVE ALTERNATIVE FOR PREVENTING FURTHER MIGRATION OF TCE FROM THE SOURCE AREA IN THE GROUNDWATER. THUS, COMBINATION WITH THE GROUNDWATER TREATMENT SYSTEM IS APPROPRIATE.

RESPONSE: AGREED.

COMMENT 3: P. 8-1 THE DECISION DOCUMENT NEEDS TO ESTABLISH A HEALTH BASED STANDARD FOR TCE AIR EMISSIONS. IF THE HEALTH-BASED STANDARD CANNOT BE OTHERWISE ACHIEVED, FLEXIBILITY SHOULD BE SPECIFIED IN THE DECISION DOCUMENT FOR THE VAPOR EXTRACTION EMISSION CONTROL SYSTEM TO BE SUPPLEMENTED WITH DESTRUCTION UNIT DURING THE DESIGN PHASE.

RESPONSE: THE FINAL DECISION DOCUMENT ADDRESSES THIS MATTER.

#RS

RESPONSIVENESS SUMMARY

COMMENTS 1: THE RESULTS OF INVESTIGATIONS TO DATE DO NOT PROVIDE A CLEAR UNDERSTANDING OF SOURCE(S) OF GROUND WATER CONTAMINATION. FOR THIS REASON THE ARMY HAS SELECTED A INTERIM ACTION THAT IS LESS DEPENDENT ON

SOURCE DEFINITION. WE STRONG RECOMMEND THAT ADDITIONAL SOURCE IDENTIFICATION AND CHARACTERIZATION BE UNDERTAKEN; STUDY AND THAT AS SOURCE CHARACTERIZATION IS COMPLETED, THAT MOVE SOURCE-SPECIFIC RESPONSE ACTIONS BE CONSIDERED.

RESPONSE: ANY ADDITIONAL SITE CHARACTERIZATION TO PERFORM THE FINAL REMEDIATION WILL BE CONDUCTED AS PART OF THE FEASIBILITY STUDY. THE ARMY BELIEVES THAT ADEQUATE DATA ARE AVAILABLE TO PERFORM AN ALTERNATIVES ASSESSMENT AND SELECT A EFFECTIVE, TIMELY INTERIM RESPONSE ACTION ACCORDING TO THE PROCESS OUTLINED IN THE FFA.

COMMENT: AS STATED IN THE STATE'S COMMENTS A THE RAILYARD IRA PROPOSED DECISION DOCUMENT, THE GROUND WATER INTERCEPT SYSTEM(S) FOR THE RAIL CLASSIFICATION YARD AND FOR THE MOTOR POOL AREA SHOULD BE EVALUATED AND DESIGNED IN CONCERT.

RESPONSE: THIS MAYBE THE CASE. SHELL OIL COMPANY IS CURRENTLY PROGRESSING ON A EFFORT TO BETTER DEFINE THE PLUMES EMANATING FROM THE RAIL CLASSIFICATION YARD AND MOTOR POOL AREA AND WILL EVALUATE THE EFFECTIVENESS OF INTEGRATING THE TWO CONTAINMENT SYSTEMS. IF THIS EVALUATION SHOWS THAT THE INTEGRATION OF THE TWO CONTAINMENT SYSTEMS AND THE USE OF THE IRONDALE BOUNDARY CONTROL SYSTEM TREATMENT FACILITY IS AN EFFECTIVE APPROACH, THEN SUCH AN INTEGRATION WILL BE PROPOSED.

COMMENT 3: THE DECISION TO TREAT THE MOTOR POOL CONTAMINATION USING THE IRONDALE CONTAINMENT SYSTEM IS INCOMPLETE WITHOUT DOCUMENTATION THAT THE ICS CAN TREAT THE VOLATILE ORGANIC COMPOUNDS (TCE AND OTHERS). THIS DEMONSTRATION MUST BE MADE AT DECISION DOCUMENT STAGE OF THE PROCESS.

RESPONSE: ADEQUACY OF THE IRONDALE BOUNDARY CONTROL SYSTEM WILL BE DETERMINED DURING THE DESIGN OF THIS IRA. SEE RESPONSE TO THE STATE'S COMMENT NO. 2. ALTERNATIVE APPROACHES TO GROUNDWATER TREATMENT ARE IDENTIFIED IN THE FINAL DECISION DOCUMENT.

COMMENT 4: SIMILARLY, SOME LEVEL OF DEMONSTRATION MUST BE MADE AT THE DECISION DOCUMENT STAGE THAT THE ICS CAN ACCEPT THE EXTRA VOLUME OF CONTAMINATED INFLUENT SCHEDULED TO BE PROVIDED BY THE MOTOR POOL INTERCEPT SYSTEM. SHELL ESTIMATES THAT THE ICS MAY BE ABLE TO TREAT UP TO 300 ADDITIONAL GPM, BUT THIS CAPACITY WOULD BE ALLOCATED TO RAILYARD IRA INTERCEPT INFLUENT.

RESPONSE: SEE RESPONSE TO THE STATE'S COMMENT NO. 2 AND 3. ALTERNATIVE APPROACHES ARE IDENTIFIED AND A SPECIFIC APPROACH WILL BE REFLECTED IN THE IMPLEMENTATION DOCUMENT.

RESPONSE: THE RESPONSE ACTION DESIGNED SPECIFICALLY FOR THE MOTOR POOL AREA FOCUSES ON THE EXTRACTION OF TCE FROM THE SOILS. GROUNDWATER TREATMENT IS INTENDED TO BE PROVIDED BY THE IRA FOR THE RAIL CLASSIFICATION YARD, AND GROUNDWATER TREATMENT ARARS ARE CONTAINED IN THE FINAL DECISION DOCUMENT FOR THAT IRA. THE SPECIFIC STANDARDS THEMSELVES HAVE ALSO BEEN LISTED IN THE FINAL DECISION DOCUMENT FOR THE MOTOR POOL AREA IRA.

COMMENT 2: P. 8-1, PARA. 4: THE ARMY STATES THAT THE STANDARDS IN 40 CFR PT. 50 WERE NOT DETERMINED TO BE APPLICABLE, RELEVANT OR APPROPRIATE, SINCE THE REGION "IS MARKEDLY DISSIMILAR FROM THE AREA ... AFFECTED BY THE OPERATION OF THE... VACUUM BLOWER." THIS IS AN INADEQUATE RATIONALE FOR NOT DETERMINING 40 CFR PT. 50 RELEVANT AND APPROPRIATE. THE NCP STATES, "REQUIREMENTS MAY BE RELEVANT AND APPROPRIATE IF THEY WOULD BE 'APPLICABLE' BUT FOR JURISDICTIONAL RESTRICTIONS ASSOCIATED WITH THE REQUIREMENT." 40 CFR S 300.6. THE GROUNDWATER IN THE MOTOR POOL AREA CONTAINS BOTH VOC'S AND LEAD, AND THEREFORE THE STANDARDS IN 40 CFR PT. 50 DEALING WITH THOSE CONTAMINANTS APPLY. IN ADDITION, COLORADO

REGULATIONS, 5 CCR 1001-7, REGULATION 7 (VOCS) AND 5 CCR 1001-10, REGULATION 8 ARE MORE STRINGENT THAN THE FEDERAL REQUIREMENTS. THEREFORE THE ARARS ANALYSIS SHOULD BE EXPANDED TO INCLUDE THE STATE REGULATIONS.

RESPONSE: THE ARMY DOES NOT BELIEVE THAT THE STANDARDS ESTABLISHED UNDER 40 CFR PART 50 ARE EITHER SPECIFICALLY APPLICABLE OR RELEVANT AND APPROPRIATE TO THIS IRA ACTIVITY. AS STATED IN THE DOCUMENT, THE AREA FOR WHICH THESE STANDARDS WERE DEVELOPED, AIR QUALITY CONTROL REGIONS (AQCR), ARE SUBSTANTIALLY DISSIMILAR FROM THE SMALL AREA WHICH CAN BE AFFECTED BY THE OPERATION OF THIS TREATMENT SYSTEM. SPECIFIC STANDARDS DEVELOPED FOR THE AMBIENT AIR OF LARGE AREAS SUCH AS AN AQCR ARE NEITHER RELEVANT NOR APPROPRIATE TO APPLY AS SPECIFIC EMISSION LIMITATIONS TO A SOURCE SUCH AS THAT CONTEMPLATED IN THIS IRA. FOR SAMPLE, THE SPECIFIC STANDARD FOR CARBON MONOXIDE FOUND IN 40 CFR PART 50 IS NOT GENERALLY APPLIED BY REGULATORY AGENCIES TO INDIVIDUAL EMISSIONS FROM AUTOMOBILE TAILPIPES, BUT TO THE AMBIENT AIR IN AN AQCR. THESE STANDARDS ARE NOT DEVELOPED FOR SPECIFIC EMISSIONS SOURCES AND ARE NOT APPROPRIATE TO APPLY TO SUCH SPECIFIC SOURCES. THE FINAL DECISION DOCUMENT REFLECTS THE ARMY'S APPROACH TO ANTICIPATED TCE EMISSIONS FROM THE VAPOR SYSTEM. NO STATE STANDARD WAS IDENTIFIED WHICH SPECIFICALLY ADDRESSED TCE EMISSIONS FROM SUCH SYSTEMS. THE STATE, ALONG WITH EPA AND SHELL, IS EXPECTED TO PARTICIPATE IN THE DESIGN AND IMPLEMENTATION OF THIS IRA TREATMENT SYSTEM AND PROVIDE TECHNICAL INPUT BASED UPON ITS EXPERIENCE AND KNOWLEDGE REGARDING THIS TREATMENT TO ASSIST IN DEVELOPING THE SPECIFIC DESIGN AND EMISSION LIMITATIONS.

COMMENT 3: P.8-2 PARA. 2: THE ARMY STATE THAT THE STANDARD FOUND IN 40 CFR S61 ("NESHAPS") WERE NOT CONSIDERED APPLICABLE, RELEVANT OR APPROPRIATE. THE ARMY SHOULD CONSIDER NESHAPS RELEVANT AND APPROPRIATE IF THE CONTAMINANTS SUBJECT TO NESHAPS ARE EMITTED IN QUANTITIES CONTEMPLATED BY THE REGULATION.

RESPONSE: NESHAPS ARE PROCESS SPECIFIC AND SINCE THE STANDARDS CONTAINED IN THOSE REGULATIONS ARE DEVELOPED SPECIFICALLY FOR PROCESSES WHICH ARE SO DISSIMILAR TO THAT INTENDED FOR THIS IRA TREATMENT SYSTEM, THEY ARE NEITHER RELEVANT NOR APPROPRIATE TO APPLY IN THE CONTEXT OF THIS IRA.